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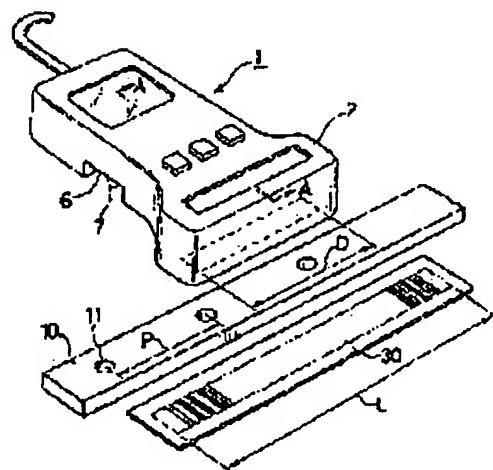
(54) LONG BAR CODE READER OF BAR CODE VERIFIER

(57)Abstract:

PURPOSE: To read even such a long bar code that is larger than the opening diameter of a scanner by providing a guide rail that can move the scanner in its scanning direction and also providing a positioning means on the guide rail.

CONSTITUTION: A casing 2 of a scanner 1 includes a guide part 6 of a recess groove shape on its bottom surface, and the direction of the part 6 is aligned with the direction of length L of a bar code 30. At the same time, a guide rail 10 is provided corresponding to the part 6 and exactly fits the groove width of the part 6 with no play at all. The scanner 1 can slide on the rail 10.

Furthermore, the positioning holes 11 are provided on the rail 10 with a space P which is equal to or smaller than the opening diameter D (maximum scanning length) of the scanner 1. Then, the scanner 1 is moved on the rail 10 and the measurement positions are successively set by the holes 11. In such a constitution, even such a long bar code 30 can be read.



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CLAIMS

[Claim(s)]

[Claim 1] While preparing the guide section which is in agreement with the scanning direction of this scanner for verification machines in the whole surface of the case of the scanner for verification machines Fit in with said guide section, and the guide rail which makes migration possible in said scanning direction is prepared in said scanner for verification machines. The positioning means for setting the travel to said scanning direction to said guide rail at spacing made into the scan maximum length of said scanner for verification machines or below scan maximum length is established as a projection or a hole. The huge bar code reader of the bar code verification machine characterized by forming an engagement means to fit into said positioning means in said scanner for verification machines.

[Claim 2] Two or more switching devices from which closing motion switches by fitting to said guide rail are prepared in said guide section of the case of said scanner for verification machines, and it corresponds for any of two or more of said switching devices being between said positioning means of said guide rail. A means by which ***** of closing motion of this switching device is performed is established. The huge bar code reader of the bar code verification machine according to claim 1 characterized by whether the scanner for verification machines is moved to the location of which spacing by the combination of closing motion of two or more of said switching devices, and having made the judgment possible.

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TECHNICAL FIELD

[Industrial Application] This invention relates to a response when the bar code which verifies in a detail is huger than the effective diameter of a scanner about the bar code verification machine which verifies whether the bar code formed by printing etc. is a thing as specification.

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PRIOR ART

[Description of the Prior Art] It is the bar code 30 which is shown in drawing 6 , and it is JIS from an about 20mm thing in die-length [of this bar code 30] L, for example. X As shown in 502, there is even a huge thing which amounts to 193mm. It is drawing 7 which shows the example of the conventional scanner 90 when corresponding to the various bar codes 30 dimensionally as mentioned above, and the light source 91, the sensor component 92, the lens 93, etc. are incorporated and constituted by this scanner 90.

[0003] At this time, a scanner 90 shall have the slit-like opening 94, it is moving this opening 94 with constant speed along the direction of die-length L of a bar code 30, and when passing bar section 30a (black part) for said sensor component 92 and passing low-level-signal and tooth-space section 30b (white part), the binary signal used as a high-level signal etc. is obtained.

[0004] And since the above-mentioned binary signal becomes what maintains only the width of said bar section 30a or tooth-space section 30b, a proper memory device etc. is made to memorize this binary signal one by one, and if this is analyzed, the content of the bar code 30 can be read. Therefore, read can be performed no matter what L [die-length] a bar code 30 may have in this scanner 90.

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EFFECT OF THE INVENTION

[Effect of the Invention] As explained above, while preparing the guide section in the whole surface of the case of the scanner for verification machines, by this invention Fit in with said guide section, and the guide rail which makes migration possible in said scanning direction is prepared in said scanner for verification machines. The positioning means for setting the travel to a scanning direction to said guide rail at spacing made into the scan maximum length of said scanner for verification machines or below scan maximum length is established as a projection or a hole. By having considered as the huge bar code reader of the bar code verification machine with which an engagement means to fit into said positioning means is formed in said scanner for verification machines It makes it possible to divide into the count of proper according to the diameter of opening, and to read as a static image also to a bar code huger than the diameter of opening of a scanner, and the extremely excellent effectiveness of raising the precision of bar code verification by this is done so.

[0025] Above moreover, whether a scanner is in which location of the measurement location in by in addition, the thing to consider as the configuration which can be known in the combination of ON/OFF of two or more switches It prevents producing the result of having judged and mistaken lack [of measurement of some sections produced by having performed the above-mentioned division], or measurement sequence order etc. by the bar code verification machine side, and the effectiveness excellent also in improvement in the dependability of this kind of bar code verification is done so.

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TECHNICAL PROBLEM

[Problem(s) to be Solved by the Invention] However, when adopting the scanner 90 of the above mentioned conventional configuration as an input of the bar code verification machine which verifies the precision of said bar code 30 very thing, an error is produced to the width of bar section 30a or tooth-space section 30b, and an exact result is not obtained by the rate nonuniformity when moving the above mentioned bar code 30 top, or meandering at the time of making it move similarly.

[0006] therefore, although it is once alike, the configuration of a bar code 30 is accumulated as a still picture on the field of image sensor components, such as CCD, as a scanner for this kind of bar code verification machines and adoption of the scanner of the quiescence mold which reads that accumulated image will become desirable In this case, if die-length L prepares the thing corresponding to the huge bar code 30 which amounts to 193mm as described above, while producing the trouble which a scanner grows large and causes disadvantage to handling, when verifying the about 20mm bar code 30, the trouble in short of precision is produced.

[0007] Moreover, although the precision when the thing which verifies by preparing and exchanging the optimal scanner for die-length L of various kinds of bar codes 30 then 3, or four kinds of scanners being needed, and surely verifying becomes what improving in order to solve the above-mentioned trouble It became what produces the new trouble said that handling makes it complicated by exchange, the amendment accompanying this, etc., and solution of these points had considered as the technical problem.

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MEANS

[Means for Solving the Problem] While this invention prepares the guide section which is in agreement with the scanning direction of this scanner for verification machines in the whole surface of the case of the scanner for verification machines as a concrete means for solving the above mentioned conventional technical problem Fit in with said guide section, and the guide rail which makes migration possible in said scanning direction is prepared in said scanner for verification machines. The positioning means for setting the travel to said scanning direction to said guide rail at spacing made into the scan maximum length of said scanner for verification machines or below scan maximum length is established as a projection or a hole. On said scanner for verification machines, a technical problem is solved by offering the huge bar code reader of the bar code verification machine characterized by establishing an engagement means to fit into said positioning means.

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EXAMPLE

[Example] Below, this invention is explained to a detail based on the example shown in drawing. What is shown in drawing 1 and drawing 2 with a sign 1 is a scanner for verification machines (it is called a scanner 1 for short below) used for a bar code verification machine. In the case 2 of this scanner 1 the light source 3 by LED etc., a lens 4, and the image sensor component 5 by CCD are formed, it shall once be alike, image formation of the configuration of a bar code 30 shall be carried out as a static image with a lens 4 on the image sensor component 5, and exact verification shall be performed to said bar code 30

[0010] Precision shall fully be guaranteed also to the bar code 30 of die-length L of min [diameter / which enables measurement to the direction of die-length L of a bar code 30 of said scanner 1 at this time / of opening / D]. In addition, although said diameter D of opening, i.e., the maximum scan length, is set up as 65mm in this example, it is also free for this invention not to limit this and to set the diameter D of opening to 50 etc.mm etc.

[0011] In addition to the above, by this invention, it shall be prepared in the guide section 6 made into the shape of a concave on the base, and the direction of this guide section 6 is made into the direction of die-length L of said bar code 30, and the match, i.e., the scanning direction and match of a scanner 1, at the case 2 of said scanner 1.

[0012] Moreover, in this invention, a guide rail 10 is formed corresponding to the above-mentioned guide section 6, and let this guide rail 10 be that to which it shall fit in, without producing backlash in the flute width of said guide section 6, and said scanner 1 can slide on a guide-rail 10 top.

[0013] Furthermore, tooling holes 11 are formed in said guide rail 10 at intervals of [certain] P (it does not need to be fixed), and let spacing P of said tooling holes 11 be said diameter D of opening (maximum scan length) and equal, or the following [the diameter D of opening] at this time. Moreover, the engagement projection 7 corresponding to said tooling holes 11 is formed in said case 2 side, and it considers as the engagement means.

[0014] In addition, in setting up the spacing P of said tooling holes 11 As opposed to the bar code 30 which has the greatest die-length L in the specification top explained also above It is what to set up as a wrap thing, without the diameter D of opening of the scanner 1 of this ** producing a gap. To the bar code 30 of die-length L, when the diameter D of opening is 50mm, spacing P may be good also as four 50mm places, or specifically, the part which overlaps a scan as four 48.25mm places may be produced.

[0015] By having considered as the above configuration, if a scanner 1 is moved on a guide rail 10 and the measuring point is set up one by one by said tooling holes 11, even if it is the bar code 30 huger than the diameter D of opening, it will become that whose reading is possible, without producing ***** etc., and the parallel displacement to the direction of die-length L of a bar code 30 will be guaranteed with said guide rail 10. In addition, connection is made in arithmetic circuits, such as a microcomputer by which the bar code 30 which divided as mentioned above and was read was connected to said scanner 1, and restoration as a series of bar codes 30 is performed.

[0016] Although it is another example of this invention which is shown in drawing 3 and drawing 4 and the scanner 1 and the guide rail 10 were formed as another object in the front example You may unify, and in this example, a slider 21 is united with a guide rail 20 considering sliding as free by fitting by the slot, further, a scanner 1 bounds on said slider 21 with a measuring point on a hinge 22 etc., and this is united with it considering the raising location as free.

[0017] Moreover, between said guide rails 20 and sliders 21, click equipment 23 is formed at the same spacing as a front example. Moreover, the bar code presser-foot section 24 is formed in the location corresponding to measurement aperture 1a of a scanner 1 at said guide rail 20, and also when it bounds and said scanner 1 is made into a raising location, while making a set possible in a right location, it is considering as the above mentioned thing which bounds and does not produce a fall etc. in a raising location as what increases the stability as the whole device when installing.

[0018] By having considered as the above configuration, with the scanner 1 of this example, to the bar code 30 of die-length L which can perform all verification at once, it becomes what can measure only by going up and down a scanner 1

on a hinge 22, and it becomes easy [alignment] by the bar code presser-foot section 24 having been formed at this time, and working efficiency improves. And what is necessary is to perform migration of a slider 21, only when verifying the long bar code 30.

[0019] When it is the important section of still more nearly another example of this invention, plurality S1, S2, and S3, for example, three switches, is formed in the part which touches said slider 10 of the guide section 6 of said scanner 1 and what is shown in drawing 5 carries out fitting of said guide section 6 to a slider 10 fundamentally, it is having OFF to ON, etc. and a condition switched.

[0020] Here, if an understanding is assumed to be 35mm for the diameter D of opening of a scanner 1 in order to give explanation easy as a more concrete thing, since it corresponds to the bar code 30 which has the length of 193mm at the maximum, six tooling holes 11a-11f will be formed in a slider 10 for example, in 35mm pitch.

[0021] In this example, when carrying out fitting of the engagement projection 7 of said scanner 1 to tooling-holes 11a For example, so that it may switch on [S1] and may not switch on [S2 and S3] A crevice 12 is established in the location corresponding to switches S2 and S3, and if the output is read in order of switches S3, S2, and S1 where fitting of the engagement projection 7 is carried out [therefore] to tooling-holes 11a, "001" will be obtained as a value.

[0022] moreover, when carrying out fitting of the engagement projection 7 of said scanner 1 to tooling-holes 11b Switch on [S2], "010" is obtained as a value, and "011" is obtained as a value in tooling-holes 11c. In 11d of tooling holes, "100" is obtained as a value, and "101" is obtained as a value in tooling-holes 11e. It shall be obtained in 11f of tooling holes in "110" as a value, and, thereby, it shall be known from the output of said switches S1-S3 measurement [in which location] was performed.

[0023] Therefore, also when much division is performed to the bar code 30 of one affair in this way and a part of measurement is missing accidentally, that an error in measurement promptly can point out under supervising the output of said switches S1-S3 with the microcomputer etc. Moreover, also when measurement is performed in random order by an operator's inattention etc. to tooling holes 11a-11f, prevention also of becoming possible to arrange in order of the right, and also producing the mistaken result is attained from the output of said switches S1-S3.

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DESCRIPTION OF DRAWINGS

[Brief Description of the Drawings]

[Drawing 1] It is the perspective view showing one example of the huge bar code reader of the bar code verification machine concerning this invention.

[Drawing 2] It is the sectional view which meets the A-A line of drawing 1.

[Drawing 3] It is the perspective view showing another example of the huge bar code reader of the bar code verification machine similarly applied to this invention.

[Drawing 4] It is the sectional view which meets the B-B line of drawing 3.

[Drawing 5] It is the sectional view showing still more nearly another example of the huge bar code reader of the bar code verification machine similarly applied to this invention in an important section.

[Drawing 6] It is the explanatory view showing the example of the bar code to which verification is performed.

[Drawing 7] It is the sectional view showing the conventional example.

[Description of Notations]

- 1 Scanner for verification machines
- 2 Case
- 3 Light source
- 4 Lens
- 5 Image sensor component
- 6 Guide section
- 7 Engagement projection
- 10 20 Guide rail
- 11, 11a-11f Tooling holes
- 12 Crevice
- 21 Slider
- 22 Hinge
- 23 Click equipment
- 24 Bar code presser-foot section
- 30 Bar code
- S1-S3 Switch
- D Diameter of opening of a scanner
- L The die length of a bar code

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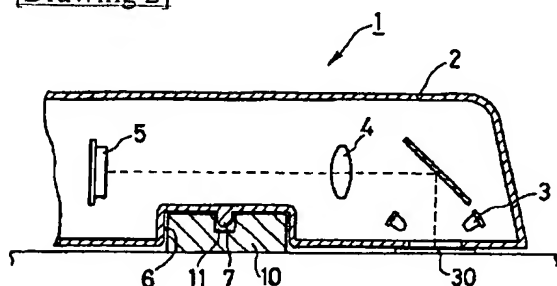
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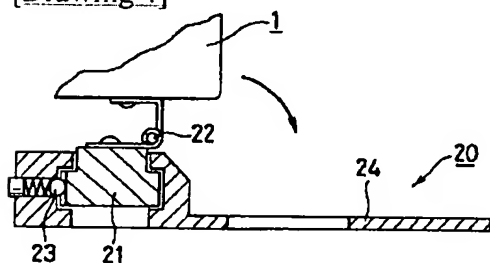
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DRAWINGS

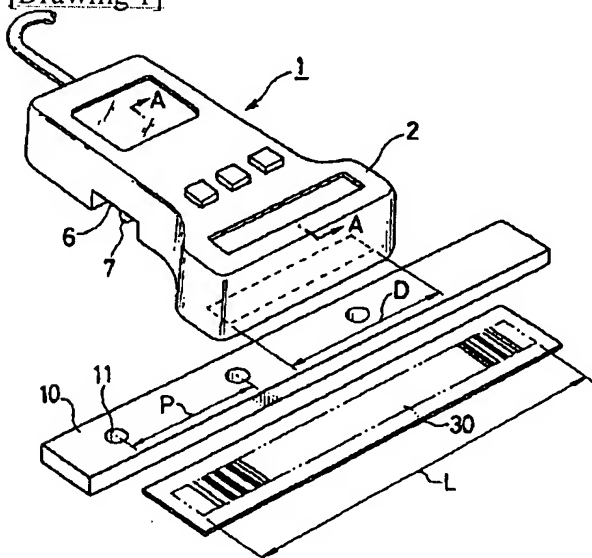
[Drawing 2]



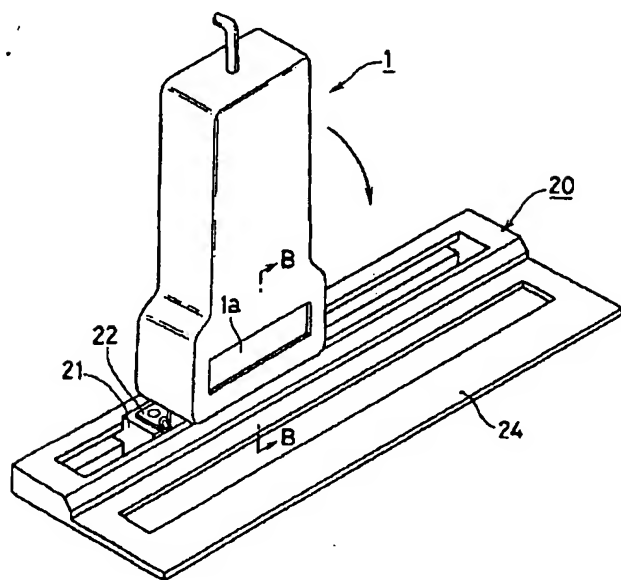
[Drawing 4]



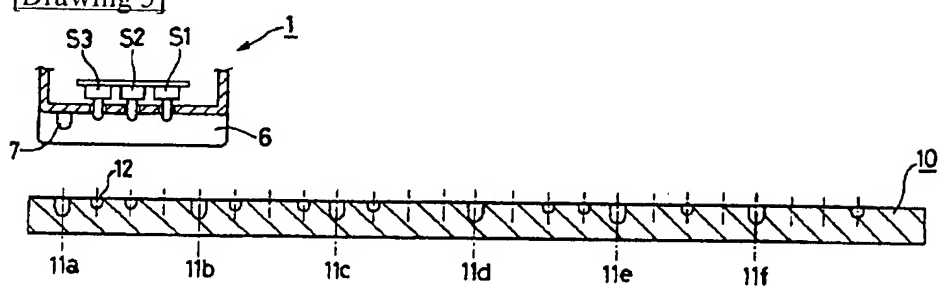
[Drawing 1]



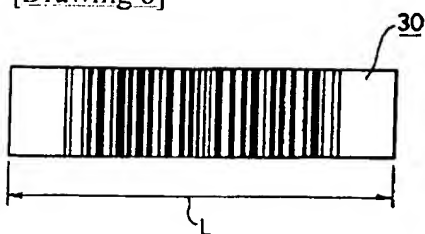
[Drawing 3]



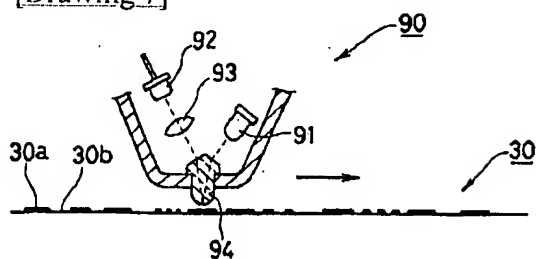
[Drawing 5]



[Drawing 6]



[Drawing 7]



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